

## Butterflies from Nagpur City, Central India (Lepidoptera: Rhopalocera)

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**Abstract.** Butterflies recorded at Nagpur city in central India from 1.I.1987 to 31.XII.1989 are listed and compared with the fauna of south India. A total of 61 species have been recorded. The butterfly fauna of Nagpur differs from fauna of Nilgiri (Blue) Mountains of south India and this might be due to differences in climate between the regions.

### Introduction

The butterfly fauna of India is quite well known (Winter-Blyth, 1957; Laithwaite *et al.*, 1975; Smart, 1975; Larsen, 1987a), but local lists of species at regional or city levels are very few (Antram, 1924; Larsen, 1987b, c, d; Wynter-Blyth, 1943, 1944, 1946, 1947; Yates, 1935, 1946). Most of these studies deal with south India fauna and there are no lists of species from central India. Nagpur (Fig. 1) is located at the center of India, 20° 9'N and 79° 9'E. This paper is an introduction to its butterfly fauna.

### Methods

Butterflies were collected weekly from 1.I.1987 to 31.XII.1989 at various sites within Nagpur city (Fig. 1). At other times, specimens were collected and identified if new species were observed. Identification was made from published literature (Evans, 1932; Laithwaite *et al.*, 1975 and Smart, 1975). Some of the specimens were sent to Dr. Jun Mitsuhashi, Tokyo, Japan and Dr. C. D. Ferris, Laramie, Wyoming, USA for identification. Genitalic examination was carried out to confirm identification of some species.

### Results and Discussion

The 61 species of butterflies I recorded in Nagpur are listed in Table 1. The butterfly fauna of Nilgiri (Blue) Mountains of south India is rich and very interesting with 300 species (Larsen, 1988). Some of the largest Papilionidae, such as *Troides minus*, *Papilio helenus daksha*, *P. polymnester* and *P. paris tamilana* are recorded from Nilgiri (Larsen, 1987a); however, none of these was recorded from Nagpur.

Papilionidae, Lycaenidae, Nymphalidae and Danaidae recorded here also occur in south India (Larsen, 1987b-d). The members of Pieridae and Satyridae recorded in this investigation are noted from south India except for *Pieris napi*, *Anthocharis cardamines*, *Mycalesis malsarida*, *M. nicotia* and *Callerebia scanda*, which occur in Nagpur.

The common evening brown, *Melanitis leda*, occurs in two very different seasonal forms. The wet season form occurs during monsoon (Jun-

Oct) and is replaced by camouflaged dry season form which continues throughout the winter and spring (Nov–May). Seasonal variations in this species have been studied earlier (Brakefield and Larsen, 1984).

The only member of Acraeidae in India, *Acraea violae* (Smart, 1975) has been recorded from both Nagpur and south India (Larsen, 1987d). A total of eight HesperIIDae species were recorded in this study, also.

South India has a rich butterfly fauna probably due to climatic conditions which differ substantially from the climate of Nagpur (central India). The climate of the Blue Mountains is mild with low temperatures and very high rainfall throughout the year (Lengerke, 1977) due to direct exposure to the southwest monsoon. Secondly, the thick evergreen forests of the Blue Mts. provide favorable conditions for a rich butterfly fauna. The climate of Nagpur differs from that of the Blue Mts. with very high temperatures and unusual rainfall. The variations in butterfly fauna between these two regions are associated with climatic differences of the regions. The butterfly fauna of Nagpur city is comprised of 61 species (Table 1), almost all of which were recorded at all the investigated sites (Fig. 1). Maxima in butterfly populations were observed during late July to January and in summer populations declined.

Fig. 1 Survey sites in Nagpur City.

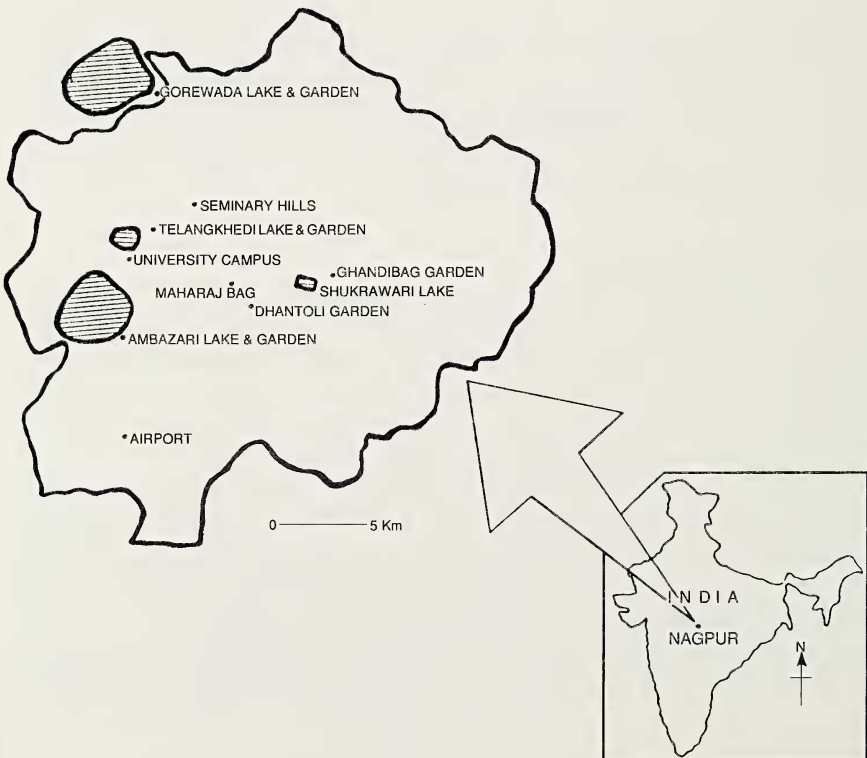


Table 1. Butterflies recorded in Nagpur city during 1987-1989

<p><b>Papilionidae</b>  <i>Pachliopta aristolochiae</i> (Fab.)  <i>P. hector</i> (L.)  <i>Graphium agamemnon</i>(L.)  <i>G. nomius</i> (Esp.)  <i>Papilio polytes</i> (L.)  <i>P. demoleus</i> (L.)</p> <p><b>Pieridae</b>  <i>Anthocharis cardamines</i> (L.)  <i>Catopsilla pomona</i> (Fab.)  <i>C. pyranthe</i> (L.)  <i>C. florella</i> (Fab.)  <i>Cepora nerissa</i> (Fab.)  <i>Colotis danae</i> (Fab.)  <i>Delias eucharis</i> (Dry.)  <i>Pieris napi</i> (L.)  <i>Terias hecabe</i> (L.)  <i>T. laeta</i> (Bdv.)</p> <p><b>Danaidae</b>  <i>Danaus chrysippus</i>(L.)  <i>D. plexippus</i> (L.)  <i>D. limniace</i> (Cramer)  <i>Euploea core</i> (Cramer)</p> <p><b>Nymphalidae</b>  <i>Apatura parisatis</i> (Westw.)  <i>Argyronome laodice</i> (Moore)  <i>Byblla ilithyia</i> (Drury)  <i>Euthalia nais</i> (Forster)  <i>Hypolimnas bolina</i> (L.)  <i>H. misippus</i> (L.)  <i>Junonia almana</i> (L.)  <i>J. lemonias</i> (L.)  <i>J. orithya</i> (L.)  <i>Neptis sappho</i> (Pallas)  <i>Phalanta phalanta</i> (Drury)  <i>Symbrenthia hypselis</i> (Godt.)</p>	<p><b>Satyridae</b>  <i>Callerebia scanda</i> (Moore)  <i>Melanitis leda</i> (L.)  <i>Mycalesis malsarida</i> (Btlr.)  <i>M. nicotia</i> (Hew.)  <i>M. visala</i> (Moore)  <i>Orsotriaena medus</i> (Fab.)  <i>Ypthima huebneri</i> (Kirby)  <i>Y. philomela</i> (Joh.)</p> <p><b>Lycaenidae</b>  <i>Castalius rosimon</i> (Fab.)  <i>Catochrysops strabo</i> (Fab.)  <i>Deudorix epijarbas</i> (Moore)  <i>Euchrysops pandava</i> (Horsf.)  <i>Freyeria trochilus</i> (Freyer)  <i>Jamides alecto</i> (Felder)  <i>Syntarucus plinius</i> (Fab.)  <i>Tajuria cippus</i> (Fab.)  <i>Tarucus alteratus</i> (Moore)  <i>Vacciniina optilete</i> (Knoch.)  <i>Zizina otis indica</i> (Murray)</p> <p><b>Acraeidae</b>  <i>Acraea violae</i> (Fab.)</p> <p><b>Hesperiidae</b>  <i>Bibasis harisa</i> (Moore)  <i>Celaenorrhinus ratnapulomaya</i> (Moore)  <i>Coladenia dan</i> (Fab.)  <i>Iambrix salsala</i> (Moore)  <i>Odontoptilum angulata</i> (Feld.)  <i>Pelopidas mathias</i> (Fab.)  <i>Spialia galba</i> (Fab.)  <i>Taractrocera maevius</i> (Fab.)</p>
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### Literature Cited

- ANTRAM, C. B. 1924. Butterflies of India. Calcutta and Simla.
- BRAKEFIELD, P. and T. B. LARSEN. 1984. The evolutionary significance of dry and wet season forms in polyphenic tropical Satyrinae. *Biol. J. Linn. Soc. Lond.* 22: 1-12.
- EVANS, W. H. 1932. The identification of Indian butterflies. Bombay Natural History Society, Bombay.
- LAITHWAITE, E., A. WATSON and E. S. P. WHALLEY. 1975. The dictionary of butterflies and moths in colour. Michael Joseph, London.
- LARSEN, T. B. 1987a. Butterflies in India. Oxford University Press, New Delhi.
- . 1987b. The butterflies of the Nilgiri Mountains of southern India (Lepidoptera: Rhopalocera). *J. Bombay Nat. Hist. Soc.* 84 (1): 26-54.
- . 1987c. The butterflies of the Nilgiri Mountains of southern India (Lepidoptera: Rhopalocera). *J. Bombay Nat. Hist. Soc.* 84 (2): 291-316.
- . 1987d. The butterflies of the Nilgiri Mountains of southern India (Lepidoptera: Rhopalocera). *J. Bombay Nat. Hist. Soc.* 84 (3): 560-584.
- . 1988. The butterflies of the Nilgiri Mountains of southern India (Lepidoptera: Rhopalocera). *J. Bombay Nat. Hist. Soc.* 85 (1): 26-43.
- LENGERKE, J. J. VON. 1977. The Nilgiris — weather and climate of a mountain area in south India. Steiner Verlag, Wiesbaden.
- SMART, P. F. 1975. The illustrated encyclopedia of the butterfly world. Salamander Book, London.
- WYNTER-BLYTH, M. A. 1943. Note on the *Curetis* species at Kallar. *J. Bombay Nat. Hist. Soc.* 43: 671-672.
- . 1944. The butterflies of the Nilgiris. *J. Bombay Nat. Hist. Soc.* 44: 536-549.
- . 1946. Addenda and corrigenda to the butterflies of the Nilgiris. *J. Bombay Nat. Hist. Soc.* 45: 613-615.
- . 1947. Additions to the butterflies of the Nilgiris. *J. Bombay Nat. Hist. Soc.* 46: 736.
- . 1957. Butterflies of the Indian region. Bombay Nat. Hist. Soc., Bombay.
- YATES, J. A. 1935. The butterflies of the Nilgiri District. *J. Bombay Nat. Hist. Soc.* 38: 330-340.
- . 1946. The butterflies of the Nilgiris — a supplementary note. *J. Bombay Nat. Hist. Soc.* 46: 197-198.